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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/761,375	01/16/2001	Terry N. Williams	11675.163.2	5328

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EXAMINER

YUN, JURIE

ART UNIT

PAPER NUMBER

2882

DATE MAILED: 07/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/761,375

Applicant(s)

WILLIAMS, TERRY N.

Examiner

Jurie Yun

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 June 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 20 June 2003 is: a) ☐ approved b) ☒ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

1. The amendment and drawing filed 6/20/03 have been entered.

Claim Objections

2. Claims 5, 8, 9, 12, 15, and 20 are objected to because of the following informalities:

In claim 5, "an emitter layer **including** an emitter tip...a substrate; and a cathode conductive layer disposed over said substrate, said **emitter tip being disposed over said cathode conductive layer**" is not shown in the drawings. Appropriate correction is required.

In claim 8, "a substrate; a cathode conductive layer disposed over said substrate; an array of emitter tips each formed from an **emitter layer disposed over said substrate...**" is not shown in the drawings. Appropriate correction is required.

In claim 9, "**a substrate; a cathode conductive layer disposed over said substrate; and an emitter tip integral with and etched entirely from an emitter layer disposed over said cathode conductive layer...**" is not shown in the drawings. Appropriate correction is required.

In claim 12, "a monolithic emitter tip projecting from and **integral with an emitter layer disposed over said cathode conductive layer...**" is not shown in the drawings. Appropriate correction is required.

In claim 15, "**a substrate; a cathode conductive layer disposed over said substrate; and an emitter tip that is an integral portion of a single emitter layer**

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disposed over said cathode conductive layer... is not shown in the drawings.

Appropriate correction is required.

In claim 20, **"a substrate; a cathode conductive layer disposed over said substrate; an array of monolithic emitter tips formed as a part of an emitter layer disposed over said substrate..."** is not shown in the drawings. Appropriate correction is required.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the elements outlined above with reference to claims 5, 8, 9, 12, 15, and 20 must be shown or the feature(s) canceled from the claim(s). Specifically, there are no drawings showing a field emission device/flat panel display device comprising: a substrate; a cathode conductive layer disposed over the substrate; and an emitter tip formed from an emitter layer disposed over the cathode conductive layer. Figure 7 shows an emitter tip (64) disposed over a cathode conductive layer (80). However, it does not show the emitter layer disposed over the cathode conductive layer, which is disposed over the substrate. New Figure 8 shows the emitter tip (64) integral with an emitter layer (120). However, it does not show this layer disposed over a cathode conductive layer, the cathode conductive layer being disposed over the substrate. Also, item number 52 in Figure 7 and new Figure 8 is not described in the specification. No new matter should be entered.

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A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1-8 and 18-19 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of U.S. Patent No. 6,175,184 B1 in view of Jones et al. (USPN 5,663,608). All of the elements of claims 1-8 and 18-19 of the application are disclosed in claims 1-8 of USPN 6,175,184 B1 except for the emitter tip being formed from and integral with the emitter layer, and the emitter tip having a base plane, and wherein the emitter tip and the single emitter layer are formed of a single material. Jones et al. (USPN 5,663,608) disclose the emitter tip (662) being formed from and integral with the emitter layer (660), and the emitter tip having a base plane, and wherein the emitter tip and the single emitter layer are formed of a single material (column 24, lines 62-65). It would have been obvious to

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one of ordinary skill in the art at the time the invention was made to modify the Williams invention and have the emitter tip formed from and integral with the emitter layer, the emitter tip having a base plane, and wherein the emitter tip and the single emitter layer are formed of a single material, as taught by Jones et al., to simplify construction.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 9, 10, 12, 13, 15, 16, 18, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Jones et al. (USPN 5,663,608).

8. With respect to claims 9, 12, 15, and 20, Jones et al. disclose a field emission device comprising a substrate (Fig. 40, 642 & 644); a cathode conductive layer (646) disposed over the substrate; and a monolithic emitter tip (662) integral with and etched entirely from an emitter layer (660) disposed over the cathode conductive layer and having a base plane adjacent to the emitter layer, an apex, and a continuously concave exterior surface extending from the base plane to the apex. Jones et al. also disclose: the exterior surface having a substantially paraboloid vertical profile that extends from the base plane to the apex; and the exterior surface having an ovoid profile that extends from the base plane to the apex. Jones et al. also disclose the emitter tip and the single emitter layer are formed of a single material (column 24, lines 62-65). In Figure 40, Jones et al. also disclose a conductive gate structure (656 & 658) disposed over the

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cathode conductive layer (646), an array of apertures (664) formed through the conductive gate structure, each of the emitter tips (662) being exposed through one of the apertures; and an anode panel (666) for emitting light in response to electrons emitted from the array of emitter tips.

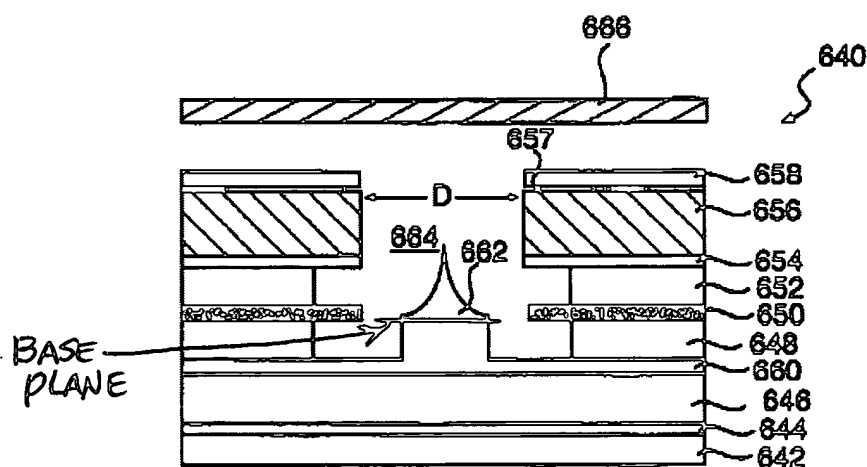


FIG. 40

9. With respect to claim 18, Jones et al. disclose a field emission device comprising an emitter tip (662) formed from an emitter layer (660), the emitter tip having a height and including a base plane and an apex, wherein the emitter tip is generally conical and has a substantially rectilinear profile between the base plane and the apex, and wherein the emitter tip and the single emitter layer are formed of a single material (column 24, lines 62-65).

10. With respect to claims 10, 13, and 16, Jones et al. disclose a conductive gate structure (Fig. 40, 656 & 658) disposed over the cathode conductive layer (646); an aperture (664) through the conductive gate structure, the emitter tip (662) being

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exposed within the aperture, and an anode panel (666) positioned over the conductive gate structure and the emitter tip.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 11, 14, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al. (USPN 5,663,608).

13. With respect to claims 11, 14, and 17, Jones et al. disclose an anode conductive layer (Fig. 40, 666), and a phospholuminescent panel for emitting light upon being excited by electrons (column 10, lines 33-39). Jones et al. do not disclose a transparent panel. However, it would have been obvious to one of ordinary skill in the art to modify the Jones et al. invention and have a transparent panel to provide image output capability of the display device.

Response to Arguments

14. Applicant's arguments filed 6/20/03 have been fully considered but they are not persuasive. Applicant believes Jones et al. do not disclose "an emitter tip integral with and etched entirely from an emitter layer...and a continuously concave exterior surface extending from the base plane to the apex." Or, "a monolithic emitter tip...said exterior surface having a substantially paraboloid vertical profile that extends from the base plane to the apex." Or, "said exterior surface having an ovoid profile that extends from

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the base plane to the apex...wherein the emitter tip and the single emitter layer are formed of a single material.” Or, “wherein the emitter tip is generally conical and has a substantially rectilinear profile between said base plane and said apex, and wherein the emitter tip and the single emitter layer are formed of a single material.”

However, Jones et al. do disclose all of the above elements. Specifically, Jones et al. disclose “an emitter tip integral with and etched entirely from an emitter layer...and a continuously concave exterior surface extending from the base plane to the apex.” Jones et al., in column 24, lines 62-65, state, “In the embodiment shown in FIG. 40, the emitter element 662 may be etchingly formed to retain a layer 660 of the current limiting emitter material integral with the emitter element 662 as shown.” Applicant relies on the embodiment shown in Fig. 39, which shows “a layered contaminated emitter”; however, the embodiment shown in Fig. 39 is a different embodiment than that shown in Fig. 40, as evidenced by the statement (column 24, lines 7-9), “FIG. 40 is a schematic representation of a tunneling field emitter structure 640 according to another embodiment of the invention.” The embodiment shown in Fig. 40, as discussed above, clearly meets the limitation of “an emitter tip integral with and etched entirely from an emitter layer...and a continuously concave exterior surface extending from the base plane to the apex.” With this being the case, then the limitations of “a monolithic emitter tip...said exterior surface having a substantially paraboloid vertical profile that extends from the base plane to the apex.”; “said exterior surface having an ovoid profile that extends from the base plane to the apex...wherein the emitter tip and the single emitter layer are formed of a single material.”; and “wherein the emitter tip is generally conical

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and has a substantially rectilinear profile between said base plane and said apex, and wherein the emitter tip and the single emitter layer are formed of a single material" are all disclosed by Jones et al.

Conclusion


15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jurie Yun whose telephone number is 703 308-3535.

The examiner can normally be reached on Monday-Friday 8:30-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on 703 308-4858. The fax phone numbers for the organization where this application or proceeding is assigned are 703 308-7722 for regular communications and 703 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-0956.

Jurie Yun
July 18, 2003


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